Westlake Styrene, LLC
Styrene Marine Terminal
Sulphur, Calcasieu Parish, Louisiana
Agency Interest Number: 17904

Louisiana Department of Environmental Quality (LDEQ)
Office of Environmental Services

STATEMENT OF BASIS

Westlake Styrene LLC
Westlake Styrene, LLC – Styrene Marine Terminal
Sulphur Calcasieu **Parish, Louisiana**
Agency Interest Number: 17904
Activity Number: PER20080002
Proposed Permit Number: 0520-00156-V2

I. APPLICANT

Facility:
Westlake Styrene, LLC
1820 Pak Tank Rd
Sulphur, Calcasieu Parish, Louisiana

Company:
Westlake Styrene, LLC - Styrene Marine Terminal
PO Box 2029
Sulphur, Louisiana 70664-2029
Latitude: 30° 8' 50"
Longitude: 93° 20' 6"

II. FACILITY AND CURRENT PERMIT STATUS

Westlake Styrene LLC, Styrene Marine Terminal, an existing Styrene Production facility began operation in June 1, 1991. The Styrene Marine Terminal has operated under Permit No. 0520-00156-00, issued June 1, 1991 and Permit No. 0520-00156-V0, issued June 11, 2004. The Styrene Marine Terminal currently operates under Permit No. 0520-00156-V1, issued April 13, 2007 and amended on October 19, 2007.

The Westlake Styrene Terminal supports the operation of the Styrene Monomer Manufacturing Facility located at the Westlake Petrochemical Complex. The Styrene Marine Terminal consists of storage tanks for styrene monomer product and benzene feedstock as well as loading and unloading facilities to transfer materials onto and/or from ships, barges, and railcars as required. The terminal also includes a collection and storage system for contaminated storm water and a flare to control Py Gas Loading. Associated utilities include fire/utility water, chilled water, nitrogen, and an ammonia refrigeration system.

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Styrene Monomer System

Styrene product from the Westlake Styrene Monomer Production Facility is transported through an eight-inch pipeline at 1,400 gallons per minute (gpm) to the styrene monomer storage tank, MT-700 (EPN 2-90). This 5 million gallon storage tank holds about 31 days' production. It is internally coated to prevent product discoloration and to reduce the formation of polymers on the roof and shell. The tank shell is insulated with three inches of cellular glass or sprayed-on polyurethane to help maintain the required storage temperature. In order to prevent polymerization during transportation and storage of the styrene monomer product, the tank contents are maintained at a temperature of 50-65 °F by means of a liquid chiller (TT-701) and a vapor chiller (TT-700). The reduced storage temperature also reduces air emissions by reducing the vapor pressure of the stored liquid. The liquid chiller is cooled by an ammonia refrigeration system. Styrene product is pumped through the liquid chiller is cooled by an ammonia refrigeration system. Styrene product is pumped through the liquid chiller and back to the tank or to the dock and then back to the tank. The pipeline is circulated by flushing the contents periodically between the product storage tank at the styrene monomer facility and the terminal storage facility. The piping is designed to allow for either continuous or periodic circulation through all transfer lines to reduce the possibility of polymer formation.

Styrene monomer is loaded onto the ships or barges at platform No. 2 of the CII Coke Plant ship dock. An eight-inch marine loading arm facilitates hookups to both ships and barges. Emergency shutdown valves are located in the load line of the platform and on the shore to stop the flow in the event of a line rupture, fire, or other unsafe condition. The styrene monomer is pumped to the dock by load pumps PP-700 A/B at a maximum rate of 1800 gpm. At this rate, a 5,000 metric ton ship could be loaded in about four hours. A vapor collection system that routes vapors to a carbon canister for control reduces emissions from the loading operation. The ships and barges loaded are leak-tested annually in accordance with Coast Guard regulations.

Styrene monomer is also loaded onto railcars from a loading rack adjacent to the tank farm area. Loading vapors are controlled by carbon adsorption (EPN 2-07).

Fugitive emissions from the equipment leaks from pumps, valves, flanges, and pressure relief valves in styrene service are included in EPN 6-90.

Benzene System

Benzene is one of the feedstocks required for the production of styrene monomer. At the Styrene Marine Terminal, benzene is received by pipeline or unloaded from barges, stored at the terminal and then transferred by pipeline to the Styrene Monomer Manufacturing Facility at the Westlake Petrochemical Complex.

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Benzene feedstock that arrives by barge is unloaded through an eight-inch marine loading arm and pumped from the barge through an eight-inch pipeline and transferred directly into the tank. From the tank, benzene is pumped through a four-inch pipeline to the Styrene Monomer Manufacturing Facility. Tank MT-704A is equipped with an internal floating roof to reduce air emissions of benzene. The tank is vented to a carbon canister to further reduce benzene emissions.

Fugitive emissions from equipment leaks from pumps, valves, flanges, and pressure relief valves in benzene service are included in EPN 6-90.

Py GAS System

Py Gas is received by pipeline from the Ethylene Plants located at the Westlake Petrochemical Complex and loaded via barges and ships for offsite sales. The emissions generated during loading operations are routed to the Py Gas Loading Flare (EN 1-07). Fugitives associated with the Py Gas System are permitted in the Petro 2 Part 70 permit.

Storm Water and Utilities Systems

Potentially contaminated storm water is collected in one of two 500-gallon working capacity covered sumps. One sump (EPN 12-90) is located at the pump pad and the other (EPN 10-90) is located at the ship dock loading platform. The pumps discharge to the contaminated storm water tank, MT-709 (EPN 4-90). Contaminated storm water is removed from the tank by vacuum truck and transported off site for treatment. Non-contaminated storm water may form an oil layer on the surface of the sumps and tank, air emissions have been conservatively estimated based on a composition of 50% benzene and 50% styrene.

An ammonia refrigeration system is used to cool the liquid chiller (TT-701). Because the system is sealed, fugitive emissions of ammonia are not expected. The ammonia refrigeration system is listed as an insignificant source.

Utilities at the terminal also include a diesel-fired firewater pump (8-90). Diesel fuel is stored in Tank MT-710 (EPN IA-1), which is listed as an insignificant emission source.

Westlake Styrene LLC - Marine Terminal is a designated Part 70 source and currently operates under the following permit:

Permit No.	Unit or Source	Date Issued
0520-00156-V1	Styrene Marine Terminal	10/19/2007

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III. PROPOSED PROJECT/PERMIT INFORMATION

Application

A permit application was submitted on December 5, 2008 requesting a Part 70 operating permit renewal for the Styrene Marine Terminal, additional information was submitted on June 4, 2009.

Project

This permit is a renewal of Permit No. 0520-00156-V1 issued on October 19, 2007. This permit also authorizes an extension to Westlake's authority to construct the Py Gas Loading Facility which was previously approved as part of the Py Gas Pipeline Project under Permit No. 0520-00156-V1 issued April 13, 2007. Westlake has not begun construction of the new facility due to market concerns but has requested to retain the authority to construct the facility beyond the allowed 2-year window to start construction which will expire in the second quarter of 2009. This permit will expend that dead line to two years from the issuance of this permit.

Furthermore, specific requirement No. 34 in Permit No. 0520-00156-V1, issued October 19, 2007 has been removed. This specific requirement identifies control requirements from the Marine Tank Vessel Loading Operations MACT Standard. This flare is not subject to the control requirements of the MACT Standard, only recordkeeping requirements. This is based on the understanding that this is considered an existing marine terminal, and not a new marine terminal.

Proposed Permit

Permit 0520-00156-V2 will be the renewal of Part 70 operating permit 0520-00156-V1 for the Styrene Marine Terminal.

Permitted Air Emissions

Estimated emissions in tons per year are as follows:

Pollutant	Before	After	Change
PM_{10}	0.11	0.11	-
SO_2	0.12	0.12	-
NO_X	2.66	2.66	-
CO	6.12	6.12	-
VOC	13.67	13.67	-

IV REGULATORY ANALYSIS

The applicability of the appropriate regulations is straightforward and provided in the Specific Requirements section of the proposed permit. Similarly, the Monitoring, Reporting and Recordkeeping necessary to demonstrate compliance with the applicable terms, conditions and standards are also provided in the Specific Requirements section of the proposed permit.